Monte Carlo simulations of the statistical decay of fission fragment in thermal n+^{235}U reaction and spontaneous fission of ^{252}Cf

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Advanced Monte-Carlo simulations of the statistical decay of fission fragment have been implemented.

This approach provides new information regarding correlations in the neutron spectrum through the Los Alamos model. In particular, correlations between emitted neutron energies and multiplicities but also prompt neutron multiplicity distribution $P(\nu)$ (and not only the average prompt neutron multiplicity $\bar{\nu}$) and γ ray spectra from fission fragments are obtained. We have first tackled the cases of thermal n+^{235}U and spontaneous fission in ^{252}Cf including constraints on the available experimental data on (E^*, J, A_L, A_H) distributions.

This kind of information is needed in simulations of detection of nuclear materials and will be utilized by a future upgraded version of MCNP.

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